

From: Fred Hauchman/DC/USEPA/US
Sent: 12/14/2011 9:32:07 AM
To: Lyle Burgoon/RTP/USEPA/US@EPA
CC:
Subject: Re: Dimock Hazard Indices/Hazard Quotients

Lyle, are you trying to call in now? if so, we're seeing if someone can open the line.

----- Original Message -----

From: Lyle Burgoon
Sent: 12/14/2011 08:42 AM EST
To: Jeanne Briskin; Victoria Binetti
Cc: Becki Clark; Darrell Winner; Yolanda Sanchez; Kathleen Deener; Fred Hauchman; Kevin Teichman
Subject: Dimock Hazard Indices/Hazard Quotients

All,

We've performed an analysis of the hazard indices/hazard quotients from the R3 organics data from the private wells in Dimock, PA. I've double checked our tox values and critical health effects, and will do so one more time before submitting a more formal report of our analysis and findings.

Bottom-line:

If we use chronic RfDs, and the maximal concentration values we were given by R3, we calculate a cumulative hazard index of 8.63 (any value above 1 is a potential health concern). The only chemical in the list with a hazard index greater than 1 was 2-methoxyethanol (8.57). The maximal drinking water concentration for this chemical was 1.5mg/L, with a chronic RfD from our PPRTV database of 0.005 (dated April 1, 2011). Due to the use of maximal concentration, and the lack of several years of data, there is a high degree of scientific uncertainty in this analysis.

Assumptions/Caveats:

- 1) We used default assumptions of 2L of drinking water ingestion and 70kg individual.
- 2) We used the maximal concentration value for all chemicals. It was noted that the metals data had huge spikes, where the maximal levels were much greater in magnitude than the mean and the median values. It is unknown if the same will be true for the organic data. Lack of the raw data, and lack of several years of monitoring data increase the uncertainty in the hazard indices for the organic chemicals.
- 3) The hazard indices calculated are worst case scenario based on maximal data. The actual hazard indices (and cumulative hazard index) should be calculated using average or median values over several years. Again, lack of the raw data over several years introduces a high degree of scientific uncertainty into the analysis.
- 4) Several of the IRIS values are several years old. There may be additional data in the published literature that, if a new IRIS assessment were performed today, would change the RfDs.

Please let me know if you have any questions. I'll be on this morning's call.

Cheers,

Lyle

Lyle D. Burgoon, Ph.D
Leader, Systems Biology and Bioinformatics
Matrix Interface to the Chemical Safety for Sustainability National Research Program
Immediate Office, National Center for Environmental Assessment
US Environmental Protection Agency

Office: B-220A
Phone: 919.541.7808

Fax: 919-685-3473
Cell: 919-397-8036

Burgoon.Lyle@epa.gov
Postal Mail: U.S. EPA, MD 243-01, Durham, NC 27711 USA
Courier Address (FedEx, UPS, etc.): 4930 Page Road, Durham, NC 27703
Driving Address: 109 T.W. Alexander Drive, Durham, NC 27709